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(54) Three-dimensional hat-cap produced by an injection mould

### *Abstract*

No contents.

### *Representative figure*

*Figure 1*

### *Specification*

#### **[Title of the invention]**

Three-dimensional hat-cap produced by an injection mould

#### **[Brief explanation of the drawings]**

Figure 1 is a side view depicting the main parts of the present device.

Figure 2 (a) is a side view of a mould of the present device in the closed-together state, and Figure 2 (b) is a side view of the state in which raw materials are supplied to an injection mould of the present device.

Figure 3 is an exploded oblique view of a mould and product of the present device.

Figure 4 is an overhead plan view of the main parts of the present device.

\*Explanation of the reference symbols of the main parts in the drawings

- |                               |                                 |
|-------------------------------|---------------------------------|
| 1: Raw-material supply port   | 2: Extrusion port               |
| 3: Recessed part of the mould | 4: Protruding part of the mould |
| 5: Hat-cap                    | 6: Cooling hose                 |

**[Detailed description of the invention]**

The present invention relates to a three-dimensional hat-cap produced by an injection mould; being a three-dimensional hat such as a gentlemen's hat, work hat or ladies hat.

Conventional hats have, depending on their shape, been produced by cutting {unclear} or leather and either knitting/weaving it or stitching it with a sewing machine, while there are also hats which are produced using an injection mould when a synthetic resin is involved, but these are simply unexciting hats insofar as the external appearance is concerned.

Thus hats such as those which have three-dimensional folds entail certain difficulties in the production process, and the process of cutting the hand-knitted/woven {unclear} and producing folds involves a primitive method, and thus substantial time and effort are consumed.

The present Application has been devised in order to overcome such disadvantages, and is explained in greater detail with reference to the attached drawings.

In producing a hat which has three-dimensional folds using an injection mould, a known Kraton raw material is placed in a raw-material supply port (1) and a screw is turned using a known motor, whereupon the Kraton raw material enters the molten state as it passes through a tube which incorporates a screw.

At this time, there is an electric heater apparatus on the tube, and the Kraton raw material is heated and melted while it passes through the tube due to the screw.

The arrangement is such that the molten Kraton, which has passed through and come out of the tube, is extruded through an extrusion port (2) and reaches the protruding part of the hat mould. The action of the screw at this time supplies Kraton raw

material in an amount so as to be able to produce one hat-cap (5) each time that the recessed part of the mould executes one reciprocating motion, since it is only when the recessed part of the mould (3) advances and pushes onto the protruding part of the mould (4), as shown in Figure 2 (b), that the molten Kraton is injected through the extrusion port (2) and into the mould and a pleated three-dimensional hat is formed as per the mould, and at the same time the screw action is repeated. Further, there is a cooling-water channel in the protruding part of the mould and cooling water is continuously supplied through a cooling-water hose (6), such that the Kraton which has emerged in the molten state can be rapidly cooled when it has squeezed through through-holes on both sides of the protruding part of the mould and three-dimensional hats can be continuously pressed from the mould.

Every time that the recessed and protruding parts of the mould describe a reciprocating movement by means of a known motor in this way, the Kraton raw material passes through the heating tube which contains the screw and is injected through the channels on both sides of the protruding part of the mould and, at the same time as it is injected, the Kraton is cooled by the cooling water while the three-dimensional pleated hat-cap (5) in the recessed part of the mould comes out.

The reference number 7 which has not been described is a spring, and 8 is a mould support. The prior art in the field of traditional synthetic resins and metals which are injected by means of a mould has been improved in such a way that a hat can be produced using a Kraton raw material, and, by producing a three-dimensional hat-cap (5), which has been produced in this way, by means of the apparatus of the present application, it is possible to use a mould to produce things which could hitherto only be produced using needlework or sewing; volume production is possible; a hat-cap (5) having three-dimensional folds is even more delicately detailed than one produced by sewing or needlework; and the cap (5) is produced as an integrated body so that it has an even longer lifespan and there are no problems with erosion of threads and the like and the hat falling apart.

The present application is the first in which such a three dimensional hat-cap (5) is produced using a Kraton raw material, and it allows the production of a splendid hat-

cap which, in terms of quality and quantity, is not in the slightest way inferior to one resulting from handicraft.

*(57) Scope of Claims*

**Claim 1**

In the production of a hat using a Kraton raw material of a known type, a three-dimensional hat-cap produced using an injection mould, characterised in that it is produced by an injection mould by pouring the Kraton raw material into a supply port (1); with regard to the Kraton raw material which has been poured in in this way, melting and extruding the Kraton from an extrusion port (2) into the protruding part of a mould (4) by means of a screw within a tube in which is embedded a heating wire; the operation being such that the action of the screw is matched with the reciprocating motion of the protruding part of the mould (4) and the recessed part of the mould (3); and using cooling water within a cooling-water hose (6) to cool the molten Kraton which has squeezed through through-holes in the protruding part of the mould (4).

*Figures*

Figure 1

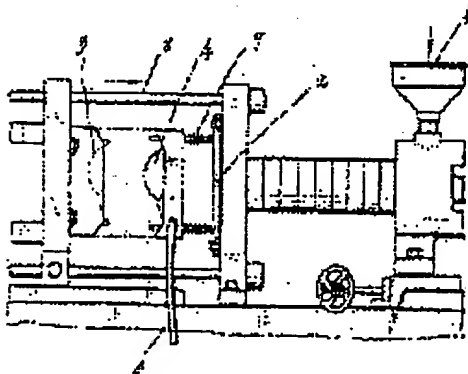


Figure 2 - A

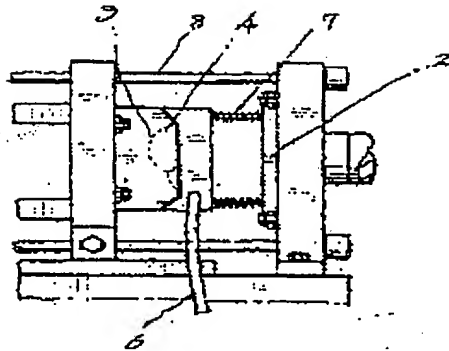


Figure 2 - B

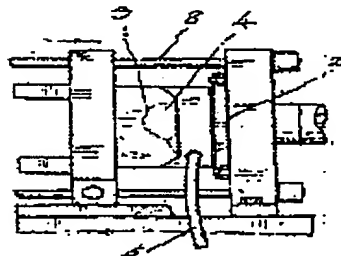


Figure 3

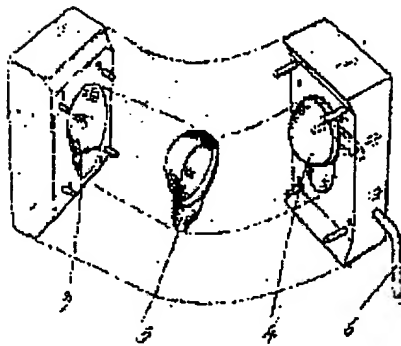
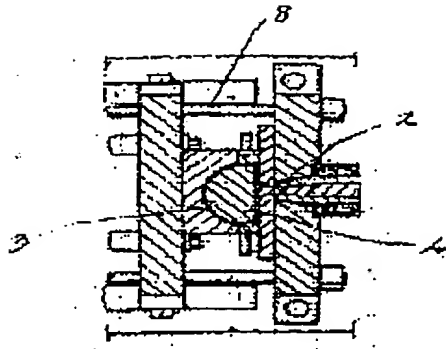


Figure 4



## Translator's Notes

**Ref: Korean Patent Report 1984-0000137**

*The following points were noted while translating the above text.*

### **Throughout the text**

The style of the Korean document is not inconsistent with its having been drawn up by a junior member of staff. This is inevitably reflected in the English.

### **"Hat-cap"**

The Korean *moja cabp'i* has been translated as "*hat-cap*" under the assumption that this is meant to be understood as "*hat or cap*". However, while *moja* is indeed the standard term for "*hat*", the assumption that "*cabp'i*" is a loan word derived from the English "*cap*" could not be confirmed.

### **"Three dimensional"**

It is not clear what is intended by the term *ibch'e* which has been rendered by its standard translation "*three dimensional*". In contexts such as the title, the implication might seem to be "*as opposed to a flat cap or beret*". However, later in the text, the expression "*three dimensional folds*" occurs, which suggests that a meaning such as "*textured*" may have been intended. (See also, note regarding "fold" below).

### **Figure 2 (a) vs Figure 2 - A**

The English reflects the original in the lack of consistency of style between the main text and the appended figures.

### **{Unclear}**

The Korean contains a term *wondan* for which no translation could be found. Hence the insertion of the translator's comment {unclear} (= "meaning unclear") in two instances in the English.

### **Knitting/weaving**

The Korean uses a single term which has meanings encompassing *knitting/weaving/plaiting*. The two more common industrial processes have both been included in the translation of this single Korean term. Greater context would be needed in order to clarify which was intended by the person who drafted the text.

### **Fold**

The Korean term *jurum* has been translated as "*fold*". It may be of note that this is open to other similar translations such as "*wrinkle/furrow/crease/rumple*". Tying this in with the comment about conventional hats having an "*unexciting ... external appearance*" and the comment about "*delicate detail*", this seems to support the surmise that the text may be referring to hats with textured surfaces. (However, against this, the figures shown no such texturing).

### **Kraton**

The substance name *Kraton* is a direct (i.e. phonetic) transliteration from the Korean. It is unclear whether or not this is a proprietary name in Korea (i.e. whether or not the English should use a capital K). (In addition, this transliteration could not be confirmed by any authoritative source, and it is not possible to entirely rule out other transliterations such as Clathon, Cratone, Krathone etc.)

### **Squeeze**

The translation "*Squeeze*" could not be confirmed, but has been derived from context with reference to common meanings of the two component elements of the Korean term.

### **Fold vs. Pleat**

It may be of note that the Korean contains two distinct terms *jurum* and *jurum-sal* for which the English uses two distinct terms *fold* and *pleat*. However, the relationship between *jurum* and *jurum-sal* is so clear that it might be suspected that a single term was intended and that the distinction is simply a drafting oversight.

### **Needlework vs. sewing**

It is not clear what distinction is intended between "Needlework" and "sewing".

**"producing a three-dimensional hat-cap, which has been produced in this way, by means of ..."**

The English reflects the Korean in the somewhat tautological nature of this phrase.

### **SEMICOLONS**

Korean does not (officially) use any equivalent to the semicolon. Semicolons in the text have been inserted by the translator to ease understanding, but it may be of note that the underlying Korean is somewhat more fluid/ambiguous as to where sentence sub-clauses occur.

**CLAIM 1:- "... with regard to the Kraton raw material ... extruding the Kraton ..."**

The Korean equivalent of the above phrase is marginally more idiomatic than the English. It is, however, unusual to find a construction of this type in a patent text.



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## 요약

내용 없음.

## 대표도

도1

## 명세서

[발명의 명칭]

사출금형으로 제조된 입체형 모자갑피

[도면의 간단한 설명]

제1도는 본 고안의 요부를 도시한 측면도.

제2(a)도는 본 고안 금형이 밀착된 상태의 측면도, 제2(b)도는 본 고안 사출기에서 원료공급을하는 상태 측면도.

제3도는 본 고안 금형과 제품의 분해사시도.

제4도는 본 고안 요부의 평단면도.

\* 도면의 주요부분에 대한 부호의 설명

1 : 원료 공급구 2 : 압출공

3 :凹부 금형 4 :凸부 금형

5 : 모자갑피 6 : 냉각호스

[발명의 상세한 설명]

본 발명은 신사용 모자와 작업모 및 숙녀용 모자들을 입체형 모자로 사출금형에 의해 제조한 입체형 모자 갑피에 관한 것이다.

종래의 모자는 모자 형상에 따라 피혁이나 원단을 재단하여 미싱으로 재봉하거나 손으로 엮어 제조하였고 합성수지의 경우는 사출금형에 의해서 제조하는 것들도 있으나 외관모양이 단조로운 모자에 불과하였다.

그러므로 입체형 주름이 있는 모자 같은 것은 제조 공정상 어려움이 있어 손으로 엮어서 된 원단을 재단하고 주름을 만드는 공정이 원시적인 방법으로 되어 있었기 때문에 많은 인력과 시간의 소모를 가져왔던 것이다.

본원은 이와 같은 결점을 해결하기 위하여 안출한 것으로 첨부된 도면에 의해 상세히 설명하면 다음과 같다.

입체형주름 모자를 사출금형에 의해 제조하되 공지의 크라톤 원료를 원료 공급구(1)에 넣고 공지의 모터에 의해 스크류를 돌리면 스크류가 들어있는 관체를 통과하면서 크라톤 원료는 용융 상태가 된다.

이때 관체에는 전열 히타장치가 있어 크라톤 원료가 스크류에 의해 관체를 통과하는동안 가열용융 시켜준다.

관체를 통과하여 나온 용융 크라톤은 압출공(2)을 따라 압출하여 모자의凸부 금형에 이르도록되어 있다. 이때 스크류의 동작은 도면 제2(b)도에서 보는 바와 같이 凹부 금형(3)이 전진하여凸부 금형(4)을 밀고 들어갈때만금형내로 압출공(2)을 통해 용융된 크라톤이 주입되어 주름살 입체형 모자를 금형과 같이 형성되며 동시에 스크류동작이 반복되므로 凹부 금형의 한번 왕복할때에 1개의 모자 갑피(5)가 제조될 수 있는 양의 크라톤 원료가 공급되는 것이다. 또凸부 금형내에는 냉각수 통로가 있어 항상 냉각수 호스(6)로 냉각수가 공급되어 용융상태로 나온 크라톤이凸부 금형양측 통공으로 인입된 것을 신속하게 냉각시켜 금형에 의해 입체형 모자를 연속 찍어낼 수 있게한 것이다.

이와 같이 공지의 모터에 의해 凹凸부의 금형이 왕복할때 마다 크라톤의 원료는 스크류가 들어 있는 가열관을 통과하여凸부 금형의 양측통로로 주입되고 주입될과 동시에 냉각수에 의해 크라톤이 냉각되면서 凹부 금형에 있는 입체형 주름살 모자 갑피(5)가 나오게되는 것이다.

미설명 부호 7은 스프링, 8은 금형 지지대이다. 금형에 의해서 사출하는 재래식 합성수지나 금속분야에서 선행된 기술을 본원에서는 크라톤의 원료를 사용하여 모자를 제조할 수 있도록 개량한 것이며 이와 같이 제조된 입체형 모자 갑피(5)를 본원의 장치에 의해 제조함으로써 종래의 재봉이나 바느질에 의해서만이 제조가 가능했던 것이 금형으로 제조될 수 있어 양산 제조가 가능하고 입체형 주름살이 있는 모자갑피(5)가 오히려 바느질이나 재봉에 의해 제조된 것보다 더 섬세하고 갑피(5)가 단일체로 되기 때문에 더 수명도 길고 실등이 부식되어 모자가 뜯어지는 폐단도 없게 된다.

크라톤 원료로 이와 같은 입체형 모자갑피(5)를 제조한 것은 본원이 처음 있는 일이며 질적으로나 양적으로 조금도 수공에 의한 것보다 떨어지지 않는 훌륭한 모자 갑피를 제조할 수 있게 된 것이다.

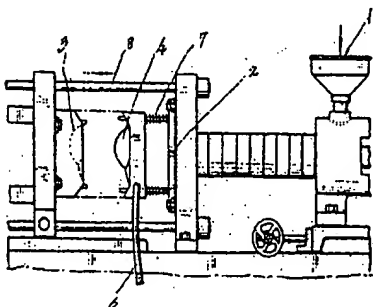
### (57)청구의 범위

#### 청구항1

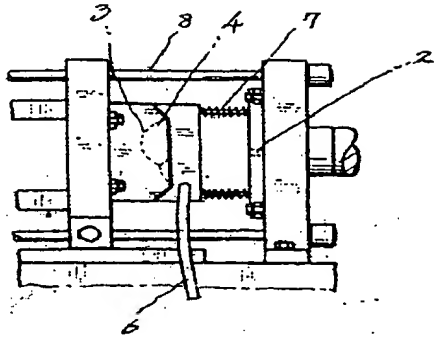
공지의 크라톤 원료를 이용한 모자를 제조함에 있어서, 크라톤 원료를 공급구(1)에 주입하고 주입된 크라톤 원료는 가열선이 매설된 관체내의 스크류에 의해 크라톤을 용융하여 압출공(2)에서凸부 금형(4)에 압출하며 스크류의 동작은凸부 금형(4)과 凹부 금형(3)의 왕복운동에 맞추어 작동하고凸부 금형(4)의 양측통공으로 인입된 용융된 크라톤을 냉각수 호스(6)내의 냉각수로 냉각하므로써 사출금형에 의해 제조되는 것을 특징으로하는 사출금형으로 제조된 입체형 모자갑피.

도면

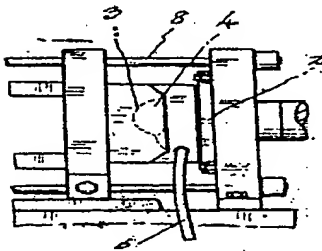
도면1



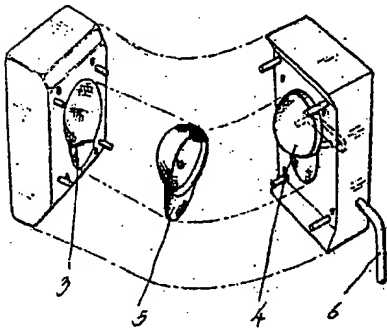
도면2-가



도면2-나



도면3



도면4

